SMART BATTERY CHARGER

User Manual

GPC-35-MAX
GPC-45-MAX
GPC-55-MAX
GPC-75-MAX
GPC-100-MAX

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Manual_GPC-35-45-55-75-100-MAX_RevC

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2. SAFETY INSTRUCTIONS

WARNING: Before you install and use your Go Power! Smart Converter/Charger, be sure to read these safety instructions. : Before you install and use your Go Power! Smart Converter/Charger.

Do not expose the GP Smart Charger to rain, snow, spray, bilge, or dust. To reduce risk of hazard do not cover or obstruct the ventilation openings

Adequate space above and below the GPC charger is vital to ensure proper temperature dissipation, and avoiding overheating.

To avoid a risk of fire and electronic shock, ensure that existing wiring is in good electrical condition and that wire size is not undersized..

Do not operate the GP Smart Charger with damaged or substandard wiring.

Be sure to tighten all connections securely. A loose connection can quickly cause terminals and wires to overheat. Review unit labels for recommended terminal torque values.

The battery terminal, not connected to the chassis, has to be connected first. The other connection to be made to is from the chassis, remote from the battery and fuel line. The Battery Smart Charger is then to be connected to the supply mains.

After charging, disconnect the GP Smart Charger from supply mains. Then remove the chassis connection and battery connection, in this order.

Do not attempt to charge non-rechargeable batteries.

Ensure lead acid batteries are placed in a well-ventilated area.

The battery Smart Charger should only be plugged-in to a grounded outlet.

If the power supply cord is damaged, contact Go Power! for instructions.

Never leave the Smart Charger unattended when plugged in.

The Go Power! Smart Converter Charger (GPC) series power converter/ charger converts 120 V nominal AC to 14.6/13.6/13.2 V DC. As a power supply, it allows the user to operate any 12 V nominal DC load up to the converter's rated output current. As a battery charger, the converter will maintain the battery, delivering its full-rated current when the battery capacity falls below a set value. The voltage is set to deliver its maximum current for the necessary period of time that minimizes heat and charging stress to the battery, ensuring long battery life. The GPC will also prevent self-discharge of the batteries.

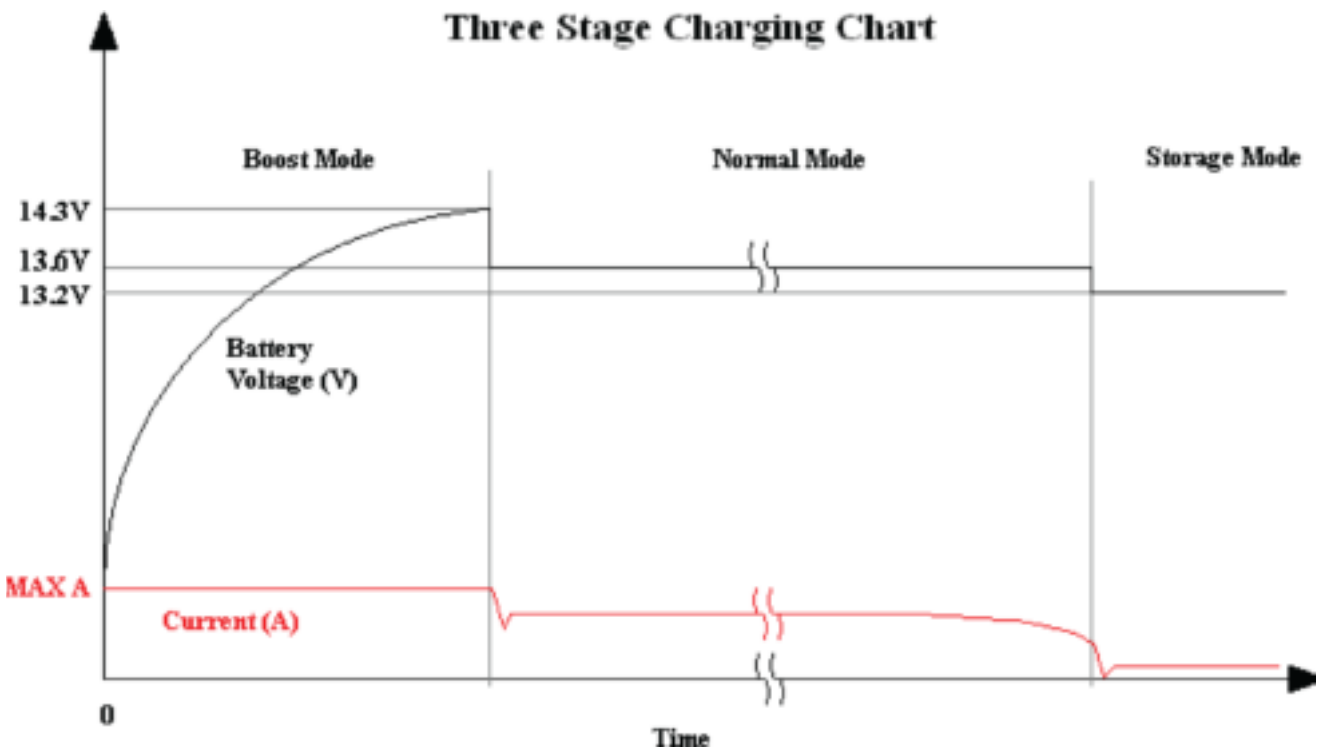
3.1 THREE STAGE CHARGING OPTION DESCRIPTION

This optional system provides an automatic charging system in three steps:

1. Fast charge to bring a good, drained battery back up to full voltage rapidly ("Boost").
2. Standard charge to bring the battery up to a full charge at a safe rate to prolong the life of the battery and provide power to run 12V lighting and appliances in the vehicle/device ("Normal").
3. Trickle charge to keep the battery fresh during times of load inactivity ("Storage").

The charger automatically changes modes to accommodate changes in conditions.

The chart below is for reference only, voltages may vary.



3.2 PROTECTION FEATURES

The GPC MAX is designed with high-quality components to help ensure years of continuous use. Multiple protection features for a long, trouble-free life protects the GPC MAX.

- Reverse Battery Polarity Protection
- Brown-Out Input Protection
- Over-Current Protection: Cycle-by-cycle peak limiting as well as rated current limiting to maximize the life of the converter
- Over-Temperature Protection: In addition, it is designed with a unique proportional fan control circuit. Fan speed is directly proportional to the converter's internal ambient temperature. This enables the fan to turn on and off very slowly, minimizing unwanted fan-starting noise.

3.3 ELECTRICAL SPECIFICATIONS

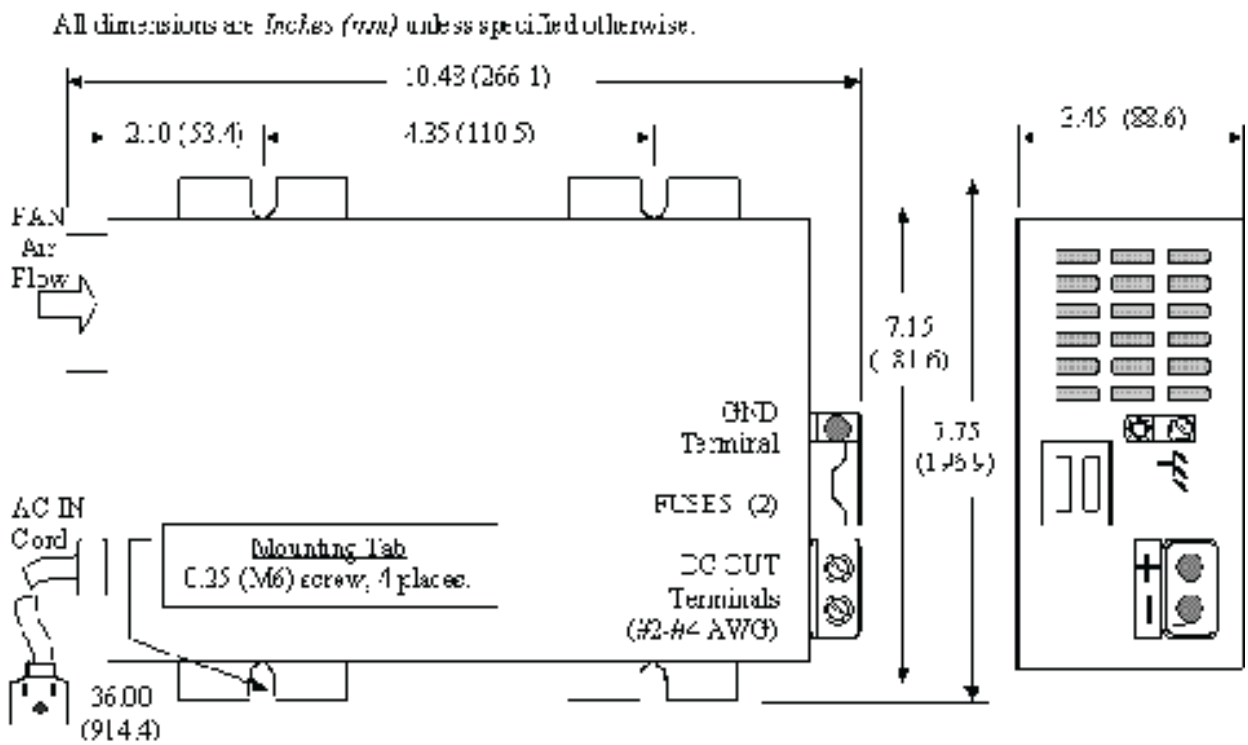
	GPC-35-MAX	GPC-45-MAX	GPC-55-MAX	GPC-75-MAX	GPC-100-MAX
DC Output Voltage (No Load) approx.			13-16.5 VDC		
Output Voltage Tolerance (No Load)			+ or -.7%		
Output Amperage, Max Continuous	35 Amps	45 Amps	55 Amps	75 Amps	100 Amps
Maximum Power Output, Continuous	510 watts	650 watts	800 watts	1095 watts	1460 watts
Input Voltage Range			105-135 VAC		
Input Voltage Frequency			47-63 Hz		
Maximum AC Current @108 VAC	8 Amps	9 Amps	11 Amps	13 Amps	15 Amps
Typical Efficiency			>85%		
Max Inrush Current, Single Cycle			40 Amps		
Short Circuit Protection			YES		
Overload Protection			>100%		
Fan Control			Proportional		
Thermal Protection			YES		
Working Temperature Range			0-45°C		
Dimensions			7.8 x 9.5 x 3.5"		
Weight		7.0 lbs		8.0 lbs	9.0 lbs

**Specifications subject to change without notice.*

There are no components within the GPC that, in their normal operation, produce arcs or sparks. However, all electronic devices have some potential for generating sparks in the event of failure. Therefore, never install this device in the same compartment with flammable items such as gasoline or batteries.

4.1 INSTALLATION

Disconnect the positive side of the battery before installation. Connect the positive (red) and negative (black) terminal lugs to battery or load. Always use the proper size wire based on the amperage of the converter and the battery. When connecting to a battery, a breaker should be installed within 18" of the battery, connecting the battery positive to the line side of the breaker, and the GPC to the load side. Connect Chassis Bonding Lug on the GPC to vehicle chassis or other grounding source.



4.2 120 VOLT AC INPUT

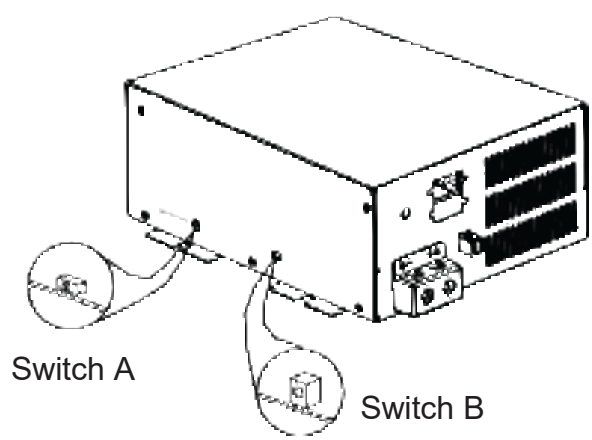
Plug the GPC AC input cord into a 120 V 3 wire grounded source. See chart for maximum current draw and required input voltages.

4.3 ADJUST FIXED VOLTAGE

The boost mode output voltage can be adjusted to any value between 13-16.5 VDC. This can be done by following the steps on the following diagram.

Note Use the following steps to charge Lithium batteries.

Out of the box, the GPC charger is set to "3 Stage" charging mode. In order to adjust the voltage used during the boost stage, the unit needs to be put into "Fixed Output" mode. To do this, move switch A to the "Fixed Output" position. This will cause the charger to output a fixed voltage that represents the boost stage voltage.



Next, ensure the unit is supplied with 120VAC at the input. Then, use Switch B to adjust the boost stage voltage by turning it slowly with a small screwdriver while measuring the output voltage with a multimeter. When the desired voltage has been reached, turn switch A back to the "3 Stage" position to put the charger back into its normal 3-stage charging mode. The charger may need to complete a charge cycle before the new voltage will take effect.

4.4 REVERSE POLARITY FUSES

The GPC is protected against reverse polarity on the DC output. If a battery or the GPC is hooked up incorrectly, the fuses will blow and can be easily replaced. Always use the same size and style fuse that came with the converter. To change the fuses, use a screwdriver to loosen the screws and remove the fuses. Always replace the fuses with the same type and rating. After inserting the new fuses, tighten the screws firmly. DO NOT OVERTIGHTEN.

5.1 GPC CHARGING

The optional GPC allows the GPC to operate as an automatic three-stage smart charger giving the customer the benefit of a Bulk, Absorption, and Float stage charging. The charging capacity of the GPCis increased, charge times are decreased, proper and safe battery charging is ensured, and overcharging is minimized.

Note Check with your batteries manufacturer specifications to confirm the GPC MAX charger will work.

5.1.1 REDUCED CHARGE TIMES

The Bulk stage allows the batteries to be charged from the full rated load of the battery. During this stage the batteries are recharged quickly to reduce charge times.

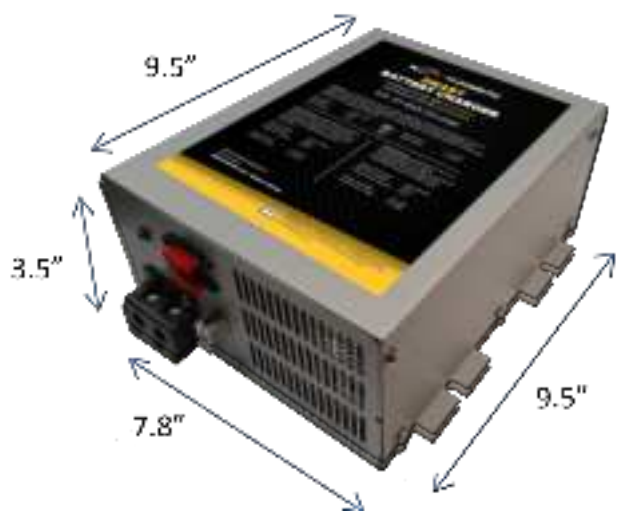
5.1.2 INCREASED BATTERY CAPACITY

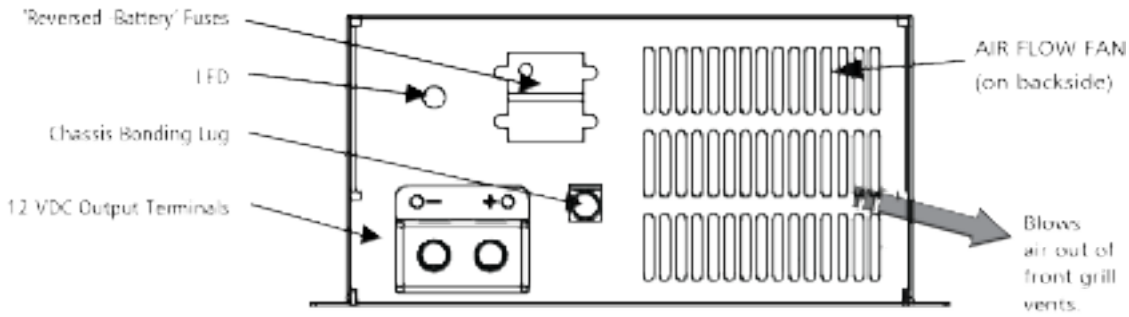
After the Bulk stage, the batteries are held in the Absorption stage for a controlled period, ensuring a full and complete charge.

5.1.3 REDUCED BATTERY STRESS

During the Float stage, the GPC charge voltage is reduced. This minimizes gassing while maintaining a full charge at the nominal rate of the battery.

5.2 EXTERNAL GPC DIMENSIONS





Note **BEFORE removing and replacing the Converter/charger, perform the following checks:**

1. **Disconnect the AC power from the vehicle/device.**
2. **Disconnect the wiring and Battery from the Converter Positive + output terminal.**
3. **Re-connect the AC power to energize the Converter.**
4. **Using a voltmeter, measure the voltage at the Converter – and + Output terminals.**
   - > **The Converter is OK if the voltage reading is between 13 VDC and 14 VDC (typically 13.6 VDC).**
   - > **Otherwise check the table below:**

ISSUE	POSSIBLE CAUSE
No 12 VDC output	• 120 VAC not connected to coach or the coach AC circuit breaker is in the **off** position. • Reversed battery fuses blown. (Battery wiring connections are reversed), • Severe overload or shorted load. Remove all loads and retest per above instructions. • Converter/Charger internal failure.
Converter cycles On & Off	• Fan air flow is inadequate or blocked. (1" minimum free air space at each end required) • Converter/Charger internal failure.
Reversed Battery fuses blown	• Battery wiring connections are reversed. • Defective battery, possible bad cells.
12 VDC output is too low	• Attached load exceeds rating of the Converter/Charger. • Defective battery, possible bad cells. • Converter/Charger internal failure.

Go Power! provides the following limited 2 year warranty ("warranty") coverage as applicable to the purchaser ("Purchaser") of the Go Power!™ branded product ("Product") directly from Go Power!™ The following constitutes the terms and conditions of that limited warranty.

7.1 WHAT IS COVERED AND FOR HOW LONG?

Subject to the exclusions and claim procedure set out below, Go Power! warrants for a period of 2 years from the date of purchase at the point-of-sale to the original end-user customer ("Sale Date"), that the Go Power! Product provides coverage as follows:

For the period ending 2 years from the Sale Date, Go Power! will, at Go Power!™'s discretion, repair or replace the Product which fails to meet the Product Specifications due to a defect in materials or workmanship or apply credit towards the purchase of new Go Power! Product.

To exercise this right, the Purchaser shall ship, at its own expense, and return the Product to Go Power! according to the return instructions detailed below, and Go Power! will, repair or replace the Product and return it to the Purchaser free of charge, or offer credit towards the purchase of new Product.

Go Power! shall be entitled, at its discretion, to use new and/or reconditioned parts in performing warranty repair or providing a replacement Product. Go Power! also reserves the right to use parts or Product of original or improved design in any repair or replacement. All replaced Product and/or any parts removed from repaired Products become the property of Go Power!

If Go Power! chooses to repair or replace a Product, the above warranty will continue to apply and remain in effect for the balance of the warranty period calculated from the Sale Date (and not the repair or replacement date).

If Go Power! chooses to offer a credit towards the purchase of new Product, then the warranty in effect and applicable to the new Product shall apply to the new Product.

7.2 WHAT IS NOT COVERED?

The Go Power! warranty does not provide coverage for the following which are expressly excluded from the above warranty:

- Failure due to normal wear and tear of the Product.
- Failure caused by separate computer software supplied with or associated with a Go Power! Product.
- Failure due to fire, water, neglect, improper installation, generalized corrosion, biological infestations, or input voltages that create operating conditions beyond the maximum or minimum listed in the Go Power! specifications including lightning strikes.
- Products which have been altered other than by Go Power! or authorized by Go Power!
- Products that have their original identification (trademark, serial number) markings defaced altered or removed.
- Products utilized as a component part of a product expressly warranted by another manufacturer.
- Operation or storage of the Product outside the specification ranges, and/or alteration or deployment of Go Power! Product s other than in accordance with any published or provided user, storage or maintenance requirements.
- Failure that is in any way attributable to the improper use, storage, maintenance, installation or placement of the Go Power! Product.
- Failure caused by abuse, misuse, abnormal use, or use in violation of any applicable standard, code or instructions for use in installations, including, but not limited to, those contained in the National Electrical Code, the Standards for Safety of Underwriters Laboratory, Inc., Standards for the International Electrotechnical Commission, Standards for the American National Standards Institute, or the Canadian Standards Association.
- Failure due to acts of God.

7.3 WARRANTY RESTRICTIONS AND LIMITATIONS

- THis Warranty is not transferable and only applies to the Purchaser.
- Go Power! does not warrant the results obtained from the implementation of recommendations made by Go Power! or its authorized distributors concerning the use, design or application of Go Power! Products
- The end-user who purchases the Product assumes all responsibility and liability for loss or damage resulting from the handling or use of Go Power! Products.
- Go Power's liability on any claim, whether in warranty, contract, negligence, or any other legal theory, for loss, damage or injury arising directly or indirectly from or in relation to the use of the Go Power! Product shall in no event exceed the purchase price of the Go Power! Product which gave rise to the claim. IN NO EVENT SHALL GO POWER! BE LIABLE FOR PUNITIVE, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHETHER FORSEEABLE OR NOT INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS OR REVENUES, LOSS OF USE OF GOODS, OR LOSS OF BARGAIN.

- The Warranty set out above is the sole warranty granted by Go Power! with respect to the Product. No oral understanding, representations or warranties shall be of any effect and Go Power! makes no further warranties, express or implied concerning the Go Power! Products other than the Warranty set ut above. The Buyer, where permitted by applicable law, hereby expressly waives any statutory or implied warranty that the Go Power! Product shall be merchantable or fit for a particular purpose.

7.4 WARRANTY RETURN PROCEDURES

Visit **gpelectric.com** to read the "frequently asked questions" section of our website to troubleshoot the problem. If trouble persists:

1. Contact Go Power!'s Technical Support team (techsupport@gpelectric.com).
2. Return defective product to place of purchase.

7.4.1 END USERS

Contact your sales representative or Dealer and discuss the problem. Often the sales representative can troubleshoot common scenarios. If applicable, warranty will be handled between the End User and the Dealer. Go Power! will only accept returned items from an End User as a last resort. If you are unable to contact the Dealer, or the Dealer refuses to provide service, please contact Go Power! directly.

7.4.2 DEALERS

Dealers will handle warranty either through their supplier or Go Power! if they qualify as a Purchaser.

7.4.3 UNITS BOUGHT DIRECTLY FROM GO POWER!

The Purchaser will return the product, freight prepaid, to Go Power! You must obtain a Return Material Authorization (RMA) number from Go Power! before returning a product. The RMA number MUST be clearly indicated on the outside of the box. Items received without an RMA number will be refused.

7.5 ADDITIONAL INFORMATION

Unless approved by Go Power! management, all product shipped collect to Go Power! will be refused.

7.6 OUT OF WARRANTY ITEMS

Go Power! electronic products are non-repairable, Go Power! does not perform repairs on its products nor does it contract out those repairs to a third party. Go Power! does not supply schematics or replacement parts for any of its electronic products.

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